

ABSTRACT

A hydraulic stepless transmission comprises a first hydraulic system that has first plungers and a swash plate, which the first plungers abut on, and a second hydraulic system that has second plungers and a swash plate, which the second plungers abut on. Formed in a cylinder block are first and second plunger holes that contain first and second plungers, respectively, a hydraulic closed circuit that connects the first and second plunger holes, and distributing valve holes that contain distributing valves, which switch flow direction of hydraulic fluid in the circuit. A shaft is provided that extends through the cylinder block, and the shaft and cylinder block synchronously rotate, with the first and second plunger holes formed in parallel to the shaft, respectively, and the swash plate of the second hydraulic system is rotatably supported around the shaft. The first and second plungers are urged toward the swash plates by springs provided in the corresponding first and second plunger holes, respectively. The swash plate of the first hydraulic system is supported by an outer ring of a first combined thrust and radial bearing that supports the shaft, and the swash plate of the second hydraulic system is supported by an outer ring of a second combined thrust and radial bearing that supports the shaft. The movement of inner rings of the first and second combined thrust and radial bearings in an axial direction to the shaft is regulated.